IN THE CLAIMS:

Please amend claims as follows.

1. (currently amended) Optical method for determining surface defects and/or material shortage on the neck ring (**3**) of a container (**4**) having an axis of symmetry (**X**), the method comprising the following steps:

- illuminating the surface (**s**) of the neck ring (**3**) of the container (**4**) with an incident light beam,
- and collecting, via a line scan camera (**6**), the light beams reflected by the neck ring of the container, in order to determine the presence of a surface defect and/or material shortage, the illuminating step causing the surface defect to occur as a lack of light or local concentration of light translating as a dark spot,

characterized in that it consists of:

- obtaining a uniform ring of light (**C**) delimited between two light cones (**19** and **20**) that converge ~~converging~~ towards a point of convergence (**F**) located on the axis of symmetry (**X**) of the container, and having a variable diameter (**D**) and/or a variable width (**E**),
- and selecting:
  - the diameter (**D**) of the convergent ring of light (**C**) at a given value in relation to a desired mean angle of incidence (α) to illuminate the surface (**s**) of the neck ring (**3**) of the container (**4**),

- and/or the width (**E**) of the convergent uniform ring of light (**C**) at a given value in relation to the width (**L**) of the surface (**s**) of the neck ring (**3**) of container (**4**).

2. canceled

3. (original) Method as in claim 2, characterized in that it consists of:

- obtaining a ring of light (**12**), via a series of elementary concentric rings of light (**14**),
- and selectively commanding the switching on/off of the elementary rings of light (**14**) in order to obtain a ring of light (**12**) of determined diameter (**D**) and/or of determined width (**E**).

4. (original) Method as in claim 2, characterized in that it consists of:

- obtaining a ring of light (**12**) of variable diameter through the relative movement of a conical mirror (**40**) in relation to a planar annular light source (**41**, **44**) emitting onto the conical mirror, perpendicular to the axis (**A**) of said mirror,
- and ensuring relative movement between the annular light source (**41**, **44**) and the conical mirror (**40**) along axis (**A**) of the conical mirror (**40**) over a given height to obtain a ring of light of determined diameter.

5. (previously presented) Method as in claim 1, characterized in that it consists of polarizing the incident light beam and of polarizing the reflected light beam before it is received by the camera (**6**).

6. (currently amended) Illumination device for a detection station to detect surface defects and/or material shortage on the neck ring (**3**) of a container (**4**) having an axis of symmetry (**X**), characterized in that it comprises:

- illumination means (**9**) able to provide a uniform ring of light (**C**) delimited between two light cones (**19** and **20**) that converge ~~converging~~ towards a point of convergence (**F**) located on the axis of symmetry (**X**) of the container, and having a variable diameter (**D**) and/or a variable width (**E**), the illumination means (**9**) causing the surface defect to occur as a lack of light or local concentration of light translating as a dark spot,
- and means (**22**) for creating a convergent uniform ring of light (**C**) having a given diameter value (**D**) in relation to the desired mean angle of incidence (α) to illuminate the surface of the neck ring of the container and/or a width (**E**) of given value in relation to the width (**L**) of the surface (**s**) of the neck ring (**3**) of container (**4**).

7. (currently amended) Device as in claim 6, characterized in that the illumination means (**9**) comprise:

- an illumination system (**11**) able to provide a uniform ring of light (**12**) of variable diameter and/or of variable expanse (**E**),
- and an optical focusing system (**16**) for converging the ring of light (**12**) onto a point of convergence (**F**) so as to illuminate the surface (**s**) of the neck ring (**3**) of the container with the convergent uniform light beam (**C**).

8. (previously presented) Device as in claim 6, characterized in that the illumination system (**11**), providing a ring of light (**12**), consists of a series of elementary annular light sources (**14**) mounted concentric fashion with respect to one another, and in that the means (**22**) for creating a ring of light (**12**) are formed by a selective switch on/off command unit for the elementary annular light sources (**14**).

9. (original) Device as in claim 6, characterized in that the illumination system (**11**), providing a ring of light (**12**) of variable diameter consists of a conical mirror (**40**) movably mounted with respect to a planar annular light source (**41**) emitting onto the conical mirror perpendicular to the axis of said mirror, and in that the means (**22**) for creating a ring of light of given diameter are formed by means commanding the relative movement of the conical mirror (**40**) in relation to the planar annular light source (**41**), along the axis of the mirror and over a given height to obtain a ring of light of determined diameter.

10. (currently amended) Device as in claim 9, characterized in that the planar annular light source comprises an annular light source (**44**) emitting in the direction of a return cone (**45**), which returns ~~returning~~ the beam of light, along a direction perpendicular to the axis of the conical mirror, the return cone (**45**) being mounted mobile or non-mobile fashion on the axis of the conical mirror.

11. (original) Device as in claim 6, characterized in that the optical convergence system (**16**) for the ring of light is a lens of Fresnel type.

12. (currently amended) Device as in claim 6, characterized in that it comprises a light diffuser (**15**) positioned between [[the]] an optical focusing system (**16**) and the annular light sources (**14, 41, 44**).

13. (previously presented) Device as in claim 6, characterized in that it comprises a polarizer interposed between the illumination system and the container to polarize the incident light beam, and a polarizer positioned to filter the reflected light beam.

14. (previously presented) Device as in claim 6, characterized in that the illumination system (**11**), at the centre of its ring of light (**12**) of variable diameter, comprises a sighting zone (**Z**) for a camera (**6**).

15. (original) Device as in claim 14, characterized in that in the camera's sighting zone (**Z**) it comprises a semi-reflective optical element (**50**) able to transmit an additional flow of light in the direction of the container to be inspected (**4**) and to ensure the transmission to camera (**6**), of the light beam reflected by the container.

16. (previously presented) Detection station to detect surface defects and/or material shortage on the neck ring of a container (**4**) having an axis of symmetry (**X**), characterized in that it comprises:

- an illumination device (**1**) as in claim 6,
- a line scan camera (**6**) positioned so as to receive the light beam reflected by the surface of the neck ring of the container,

and a processing and analysis unit (**7**) connected to camera (**6**) and adapted to analyse the video signal delivered by the camera in order to determine the presence of any surface defect and/or material shortage